

# United States Patent [19]

Stol et al.

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[54] COMPOSITE POLYMERIC MATERIAL FOR BIOLOGICAL AND MEDICAL APPLICATION AND THE METHOD FOR ITS PREPARATION

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## Related U.S. Application Data

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## [30] Foreign Application Priority Data

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[58] Field of Search ..... 523/105, 106, 113, 114; 524/21, 24, 498, 460, 845; 525/54.1, 937; 351/160 H; 260/123.7

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## [57] ABSTRACT

The invention relates to a composite polymeric material suitable for biological and medical applications and to the method for preparation thereof. The composite material consists of 1-99 wt. % of hydrophilic polymer or copolymer based on methacrylic or acrylic esters, 1-99 wt. % of fibrillar collagen, and up to 2.5 wt. % of a crosslinking agent, based on both polymeric components. The composite material may further comprise biologically active compounds and other auxiliary materials, as fillers and/or plasticizers. The composite material is prepared by dispersing the fibrillar collagen in a solution or a highly swollen dispersion of the synthetic hydrophilic polymer or copolymer in a lyotropic agent and the subsequent removal of the lyotropic agent, thus forming a matrix of the synthetic polymer or copolymer penetrated by fibrillar collagen or vice versa. The composite material may be applied on a solid support or reinforced with glass, plastics, cellulose, or metallic materials.

6 Claims, No Drawings